

IN THE UNITED STATES PATENT AND TRADEMARK OFFICE

IN RE APPLICATION OF:

KIYOJI TAKAGI ET AL

SERIAL NO. 09/505,468

GROUP ART UNIT: 1773

EXAMINER: NAKARANI, DHIRAJLAL S

FOR: MULTILAYERED MOLDINGS

DECLARATION UNDER 37 C.F.R. 1.132

HONORABLE COMMISSIONER OF PATENTS & TRADEMARKS

WASHINGTON, D.C. 20231

SIR:

Now comes Kiyoji TAKAGI, a citizen of Japan, and a resident of c/o Mitsubishi Engineering-Plastics Corporation, Technical Center, 6-2, Higashi-Yahata 5-chome, Hiratsuka-shi, Kanagawa-ken, Japan, who declares and says that:

1. I graduated from the University of Mie, Faculty of Engineering, Chemistry Department of Resources (Master degree) in March, 1986.

2. I was employed by Mitsubishi Petrochemical Co., Ltd., from April 1986 to September 1994, was employed by Mitsubishi Chemical Corporation from Oct 1994 to July 1995 and have been employed by Mitsubishi Engineering-Plastics Corporation since August 1995 and have been engaged in the research and development of engineering plastics.

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3. I am an inventor of U.S. Patent Application, Serial No. 09/505,468.

4. I have read the Office Action dated October 28, 2002, have understood the Examiner's rejection of the invention claimed in the above application, and have studied USP 4,842,951.

5. In USP 4,842,951, as a gas permeation-resistant layer, an ethylene-vinyl alcohol copolymer (Eval EP-F101 by Kuraray Co., Ltd in Example 1 which is equal to Eval F101) and an ethylene-vinyl alcohol copolymer (Soanol ET by Nippon Gosei Kagaku K.K in Example 2) were used.

6. As seen from attached catalogue by Kuraray Co., Ltd obtained by the homepage (address: <http://www.eval.jp/products/index.html>) with English partial translation, the ethylene-vinyl alcohol copolymer used in Example 1 of USP 4,842,951 has a flexural modulus of **36,000** kg/cm².

7. As to Soanol ET by Nippon Gosei Kagaku K.K in Example 2, I have not obtained a catalogue disclosing the flexural modulus thereof. So, under my control, the flexural modulus of Soanol ET by Nippon Gosei Kagaku K.K was measured according to ASTM D790. As the result of measurement, the flexural modulus of Soanol ET by Nippon Gosei Kagaku K.K according to ASTM D790 was **40,500** kg/cm².

8. As seen from the above results, both Eval EP-F101 by Kuraray Co., Ltd and Soanol ET by Nippon Gosei Kagaku K.K which were used in USP 4,842,951 are out of scope in the present invention (not more than 5,000 kg/cm²) measured by a ASTM D790.

9. I declare further that all statements made herein of my own knowledge are true and that all statements made on information and belief are believed to be true; and further that these statements were made with the knowledge that willful false statements and the like so made are punishable by fine or imprisonment, or both, under Section 1001 of Title 18 of the United States Code, and that such willful false statements may jeopardize the validity of the application or any patent issuing thereon.

10. Further, deponent saith not.

Date: February 24, 2003

Kiyoji Takagi
Kiyoji TAKAGI

5. Mechanical Properties of <Eval>

Mechanical properties of an injection molded test piece

Item	Unit	Method	Brand
.....			F101.....
..			
(last item)			
(Flexural	kg/cm ²	ASTM D790	3.6×10^4
Modulus)	MPa	ISO 178	3.8×10^3



4. 〈エパール®〉の熱的性質

項目	単位	測定条件	規格				
			L101	F101	H101	E105	G156
融点	℃	ISO3143 (DSC吸熱ピーク温度)	191	183	175	165	157
ビカソト軟化温度	℃	ISO306 (H.D.テスター法)	180	173	165	155	146
結晶化温度	℃		167	161	151	142	138
ガラス転移点	℃		72	69	62	55	50
密着粘度	Pa·s	ISO11443 (190℃、 γ 10°sec ⁻¹)	—	3.0×10^3	3.0×10^3	1.3×10^3	0.6×10^3
	Pa·s	ISO11443 (210℃、 γ 10°sec ⁻¹)	8.0×10^3	2.0×10^3	1.9×10^3	0.7×10^3	0.5×10^3
	Pa·s	ISO11443 (230℃、 γ 10°sec ⁻¹)	1.1×10^3	1.4×10^3	1.1×10^3	0.2×10^3	0.4×10^3

5. 〈エパール®〉の機械的性質

射出成形試験片の機械的性質

項目	単位	測定条件	銘柄				
			L101	F101	H101	E105	G156
降伏点強度	kg/cm ² MPa	ASTM D-638 (引張速度10%/分) ISO 527	960 —	790 —	680 —	600 —	440 —
破断点強度	kg/cm ² MPa	ASTM D-638 (引張速度10%/分) ISO 527	760 38	730 34	600 27	520 26	380 22
降伏点伸び	%	ASTM D-638 (引張速度10%/分) ISO 527	6 —	8 —	8 —	7 —	3 —
破断点伸び	%	ASTM D-638 (引張速度10%/分) ISO 527	200 20.8	230 14.4	250 35.9	280 17.0	330 13.9
ヤング率	kg/cm ² MPa	ASTM D-638 (引張速度10%/分) ISO 527	— 3.0×10^3	2.7×10^3 2.7×10^3	2.4×10^3 2.6×10^3	2.1×10^3 2.4×10^3	— 2.3×10^3
アイソット衝撃強度	kJ/m ² kJ/m ²	ASTM D-256 ノッチ付 ISO 180 ノッチ付	1.1 4.0	1.7 2.9	1.5 4.0	1.0 3.4	1.3 1.8
ロックウェル表面硬度	M M	ASTM D-785 ISO 2039-2	96 96	100 100	93 93	88 88	70 70
テーバー磨耗度	mg	ASTM D-1175 **	—	1.2	2.0	2.2	—
ステイフネス	kg/cm ²	ASTM D-747	—	3.7×10^3	3.4×10^3	3.1×10^3	—
曲げ強度	kg/cm ² MPa	ASTM D-790 ISO 178	— 127	1220 108	1100 97	1000 88	— 78
曲げ弾性率	kg/cm ² MPa	ASTM D-790 ISO 178	— 4.5×10^3	3.6×10^3 3.8×10^3	3.2×10^3 3.5×10^3	3.0×10^3 3.0×10^3	— 2.8×10^3

** 1000回転、磨耗粉CS-17、荷重1kg

〈エパール®〉フィルムについては「10. 〈エパール®〉フィルムの銘柄別特性値」をご参照ください。